

## CLAIMS

1           1. An intermediate network device for use within a computer network having a  
2 server configured to provide one or more data streams to a client, each stream having a  
3 corresponding bandwidth, the network device comprising:

4           means for determining network traffic characteristics sufficient to identify a  
5 stream from the server to the client;

6           means for determining the bandwidth of the stream; and

7           a resource reservation protocol (RSVP) transmitter proxy configured to reserve  
8 resources within the computer network on behalf of the server for allocation to the  
9 stream.

1           2. The intermediate network device of claim 1 wherein the RSVP transmitter  
2 proxy is configured to generate and send one or more RSVP Path messages on behalf of  
3 the server, the one or more RSVP Path messages containing the network traffic charac-  
4 teristics and the bandwidth of the stream.

1           3. The intermediate network device of claim 2 wherein the RSVP transmitter  
2 proxy is configured to terminate RSVP Reservation (Resv) messages that are sent to the  
3 server.

1           4. The intermediate network device of claim 3 wherein the RSVP transmitter  
2 proxy is configured to generate and send one or more RSVP Path Teardown (PathTear)  
3 messages on behalf of the server for releasing the reserved resources allocated to the  
4 stream.

1           5. The intermediate network device of claim 3 wherein the RSVP transmitter  
2 proxy is configured to generate and send one or more RSVP Path Teardown (PathTear)  
3 messages on behalf of the server for releasing the reserved resources allocated to the  
4 stream.

1           6. The intermediate network device of claim 1 wherein the means for determining  
2 the network traffic characteristics is a packet classification engine that is configured to  
3 snoop on messages exchanged between the server and the client.

1           7. The intermediate network device of claim 6 wherein the means for determining  
2 the stream's bandwidth is the packet classification engine.

1           8. The intermediate network device of claim 7 wherein the packet classification  
2 engine is configured to snoop on Real-Time Streaming Protocol (RTSP) messages in or-  
3 der to determine the network traffic characteristics and the bandwidth of the stream.

1           9. The intermediate network device of claim 8 wherein the packet classification  
2 engine is configured to extract the bandwidth of the stream from one or messages whose  
3 contents are organized at least in part in accordance with the Session Description Proto-  
4 col (SDP) specification standard.

1           10. The intermediate network device of claim 9 further comprising a session man-  
2 ager configured to store the network traffic characteristics and bandwidth of the stream.

1           11. The intermediate network device of claim 10 wherein the stream has an RTSP  
2 state and the session manager includes one or more state machine engines configured to  
3 maintain the RTSP state of the stream.

1           12. The intermediate network device of claim 2 wherein  
2 the client has a network layer address and a transport layer port for use in receiv-  
3 ing the stream from the server,  
4 the server has a network layer address and a transport layer port for use in sending  
5 the stream to the client, and  
6 the network traffic characteristics include the client's network layer address and  
7 transport layer port and the server's network layer address and transport layer port.

1           13. The intermediate network device of claim 12 wherein  
2           the stream uses a given transport layer protocol, and  
3           the network traffic characteristics include the given transport layer protocol.

1           14. The intermediate network device of claim 13 wherein the RSVP Path mes-  
2           sages generated and sent by the RSVP transmitter proxy on behalf of the server include a  
3           session object containing the client's network layer address and transport layer port and  
4           the transport layer protocol associated with the stream.

1           15. The intermediate network device of claim 14 wherein the RSVP Path message  
2           includes a sender template object containing the server's network layer address and  
3           transport layer port associated with the stream.

1           16. The intermediate network device of claim 15 wherein the RSVP Path message  
2           includes a sender Tspec object containing the bandwidth of the stream.

1           17. The intermediate network device of claim 2 further comprising means for ob-  
2           taining a differentiated services codepoint (DSCP) value that is based on the bandwidth  
3           of the stream.

1           18. The intermediate network device of claim 17 wherein the RSVP transmitter  
2           proxy is configured to load the DSCP into the RSVP Path message generated and sent on  
3           behalf of the server.

1           19. The intermediate network device of claim 18 wherein the RSVP Path message  
2           includes a DCLASS object containing the DSCP.